

We claim:

1. A method of dispensing a therapeutic agent *in situ* to a localized region in an individual comprising administering to said region a polymer composition that comprises a biocompatible polymer, a cross-linking composition that comprises a cross-linker, and the therapeutic agent, wherein the polymer composition and the cross-linking composition are administered to allow formation of a cross-linked polymer *in situ* at the localized region, which cross-linked polymer comprises the therapeutic agent.

2. The method of claim 1, wherein the polymer composition comprises the therapeutic agent.

3. The method of claim 1, wherein the polymer composition and the cross-linking composition are separately administered to the localized region.

4. The method of claim 3, wherein the polymer composition and the cross-linking composition are administered to the localized region from separate containers, wherein a first container contains the polymer composition and a second container comprises the cross-linking composition.

5. The method of claim 4, wherein the first and second containers are syringes.

6. The method of claim 1, wherein the polymer composition and the cross-linking composition are administered to said region by means of a single container having at least two compartments, wherein one compartment comprises the polymer composition and another compartment comprises the cross-linking composition.

7. The method of claim 1, wherein the polymer composition and the cross-linking composition are administered to said region by means of a single container having a hollow cylindrical compartment, wherein the polymer composition and cross-linking composition are administered separately through said compartment.

8. The method of claim 7, wherein the separate administrations of said polymer composition and said cross-linking composition are by syringe.

9. The method of claim 1, wherein the polymer composition and cross-linking compositions are administered separately from a syringe having at least two compartments.

10. The method of claim 1, wherein the polymer is a polysaccharide, a polyamino acid polymer, or a combination thereof.

11. The method of claim 10, wherein the polymer is a polysaccharide, and the polysaccharide polymer is an alginate, hydroxycellulose, chondroitin, chitosan, hyaluronate, dextran, or starch.

12. The method of claim 10, wherein the polymer is a polyamino acid, and the polyamino acid is a polyglutamate or a polyaspartate.

13. The method of claim 1, wherein said cross-linking agent is a salt of a divalent cation.

14. The method of claim 13, wherein said divalent cation is Ca^{2+} , Mg^{2+} , Mn^{2+} , Cu^{2+} , Cr^{2+} , Sr^{2+} , Zn^{2+} , Ra^{2+} , or Be^{2+} .

15. The method of claim 13, wherein said salt of a divalent cation is calcium chloride, calcium sulfate, calcium phosphate, calcium carbonate, calcium chlorate, calcium fluoride, calcium bromide, magnesium chloride, magnesium sulfate, magnesium phosphate, magnesium carbonate, magnesium chlorate, magnesium fluoride, magnesium bromide, manganese chloride, manganese sulfate, manganese phosphate, manganese carbonate, manganese chlorate, manganese fluoride, manganese bromide, copper chloride, copper sulfate, copper phosphate, copper carbonate, copper chlorate, copper fluoride, copper bromide, chromium chloride, chromium sulfate, chromium phosphate, chromium carbonate, chromium chlorate, chromium fluoride, chromium bromide, strontium chloride, strontium sulfate, strontium phosphate, strontium carbonate, strontium chlorate, strontium fluoride, strontium bromide, zinc chloride, zinc sulfate, zinc phosphate, zinc carbonate, zinc chlorate, zinc fluoride, zinc bromide, radium chloride, radium sulfate, radium phosphate, radium carbonate, radium chlorate, radium fluoride, radium bromide, beryllium chloride, beryllium sulfate, beryllium phosphate, beryllium carbonate, beryllium chlorate, beryllium fluoride, or beryllium bromide.

16. The method of claim 1, wherein the therapeutic agent is a drug, a hormone, a gene therapy composition, a radionuclide, a nutraceutical, or a combination thereof.

17. The method of claim 16, wherein the therapeutic agent is a drug, and the drug is cisplatin, doxorubicin, Taxol, daunorubicin, mitomycin, actinomycin D, bleomycin, VP16, tumor necrosis factor, vincristine, vinblastine, carmustine, melphalan, cyclophosphamide, chlorambucil, bisulfan, lomustine, penicillin, erythromycin, amoxicillin, cefazolin, imipenem, aztreonam, sulbactam, linezolid, gentamicin, sulfamethoxazole, vancomycin, ciprofloxacin, fusidic acid, trimethoprim, metronidazole, clindamycin, mupirocin, amphotericin B, rifampin, fluconazole, or a combination thereof.

18. The method of claim 16, wherein the therapeutic agent is a hormone, and the hormone is luteinizing hormone releasing hormone, growth hormone, growth hormone releasing hormone, estrogen, progesterone, testosterone, androgen, corticotropin, prolactin, gonadotropin, somatotropin, somatostatin, somatotropin releasing hormone, gonadotropin

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20. The method of claim 19, wherein the vector is a plasmid, an adenoviral vector, an adeno-associated viral vector, a retroviral vector, a liposome, or a combination thereof.

22. The method of claim 16, wherein the therapeutic agent is a nutraceutical, and the nutraceutical is arabinogalactan, acerola cherry, agnus castus (vitex), amla, andrographis, artichoke (globe), ashwagandha, astragalus, bacopa, beta 1,3 glucans, beta sitosterol, bilberry, borage oil, boswellia, broccoli cruciferous, bromelain, butcher's broom, calcium hydroxyl apatite, cascara sagrada, cat's claw, cetyl myristoleate, chamomile,

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chitosan, chlorella, chondroitin sulfate, chromium yeast, citrus aurantium, citrus seed extract, co-enzyme Q10, colostrum, cordyceps, cranberry, creatine monohydrate, devil's claw, DHEA, DMG, dong quai, echinacea, elderberry, ephedra, evening primrose oil, feverfew, fish marine lipids, fish oil concentrate powder, fish protein powder, flaxseed oil, garcinia HCA, garlic T.A.P., germanium Ge-132, ginger, ginkgo, ginseng-American, ginseng-Siberian, ginseng-Asian, glucosamine, goldenseal, gotu kola, grapeseed extract, green tea extract, guarana, gymnema, hawthorne, hops, horse chestnut, horsetail, kava kava, kola nut, lecithin, licorice, lipoic acid, lycopene, medium chain tri-glycerides, melatonin, milk thistle, MSM, muira puama, nag, nettles, noni, ocimum sanctum, octacosanol, olivir, passion flower, pau d'arcophosphatidylserine, picrorhiza, potassium glycerophosphate, pygeum, quercetin, reishi, saw palmetto, schisandra, sea cucumber, selenium yeast bound, shark cartilage, shark liver oil, shiitake, shilajit, sodium copper chlorophyllin, spirulina, squalene, St. John's Wort, stevia, suma, tribulus (Bulgarian) triphala, tumeric, uva ursi, valerian, wild yam extract, willow bark, yohimbe bark extract, or a combination thereof.

23. The method of claim 1, wherein the therapeutic agent further comprises a detectable identifier, wherein the detectable identifier is an X-ray contrasting agent, a CT contrasting agent, an MRI contrasting agent, a fluorophore, a luminophore, or a combination thereof.

24. A method of treating a tumor *in situ* in an individual comprising the steps of administering to said tumor a polymer composition that comprises a biocompatible polymer, a cross-linking composition that comprises a cross-linker, and the therapeutic agent, wherein the polymer composition and the cross-linking composition are administered to allow formation of a cross-linked polymer *in situ* at the tumor, which cross-linked polymer comprises the therapeutic agent.

25. The method of claim 24, wherein the polymer composition comprises the therapeutic agent.

26. The method of claim 24, wherein the polymer composition and the cross-linking composition are separately administered to the localized region.

27. The method of claim 26, wherein the polymer composition and the cross-linking composition are administered to the localized region from separate containers, wherein a first container contains the polymer composition and a second container comprises the cross-linking composition.

28. The method of claim 27, wherein the first and second containers are syringes.

29. The method of claim 24, wherein the polymer composition and the cross-linking composition are administered to said region by means of a single container having at least two compartments, wherein one compartment comprises the polymer composition and another compartment comprises the cross-linking composition.

30. The method of claim 24, wherein the polymer composition and the cross-linking composition are administered to said region by means of a single container having a hollow cylindrical compartment, wherein the polymer composition and cross-linking composition are administered separately through said compartment.

31. The method of claim 30, wherein the separate administrations of said polymer composition and said cross-linking composition are by syringe.

32. The method of claim 24, wherein the polymer composition and cross-linking compositions are administered separately from a syringe having at least two compartments.

33. The method of claim 24, wherein the polymer is a polysaccharide, a polyamino acid polymer, or a combination thereof.

34. The method of claim 33, wherein the polymer is a polysaccharide, and the polysaccharide polymer is an alginate, hydroxycellulose, chondroitin, chitosan, hyaluronate, dextran or starch.

35. The method of claim 33, wherein the polymer is a polyamino acid, and the polyamino acid is a polyglutamate or a polyaspartate.

36. The method of claim 24, wherein said cross-linking agent is a salt of a divalent cation.

37. The method of claim 36, wherein said divalent cation is Ca^{2+} , Mg^{2+} , Mn^{2+} , Cu^{2+} , Cr^{2+} , Sr^{2+} , Zn^{2+} , Ra^{2+} , or Be^{2+} .

38. The method of claim 36, wherein said salt of a divalent cation is calcium chloride, calcium sulfate, calcium phosphate, calcium carbonate, calcium chlorate, calcium fluoride, calcium bromide, magnesium chloride, magnesium sulfate, magnesium phosphate, magnesium carbonate, magnesium chlorate, magnesium fluoride, magnesium bromide, manganese chloride, manganese sulfate, manganese phosphate, manganese carbonate, manganese chlorate, manganese fluoride, manganese bromide, copper chloride, copper sulfate, copper phosphate, copper carbonate, copper chlorate, copper fluoride, copper bromide, chromium chloride, chromium sulfate, chromium phosphate, chromium carbonate, chromium chlorate, chromium fluoride, chromium bromide, strontium chloride, strontium sulfate, strontium phosphate, strontium carbonate, strontium chlorate, strontium fluoride, strontium bromide, zinc chloride, zinc sulfate, zinc phosphate, zinc carbonate, zinc chlorate,

zinc fluoride, zinc bromide, radium chloride, radium sulfate, radium phosphate, radium carbonate, radium chlorate, radium fluoride, radium bromide, beryllium chloride, beryllium sulfate, beryllium phosphate, beryllium carbonate, beryllium chlorate, beryllium fluoride, or beryllium bromide.

39. The method of claim 24, wherein said therapeutic agent is a drug, a hormone, a gene therapy composition, a radionuclide, a nutraceutical, or a combination thereof.

40. The method of claim 39, wherein the therapeutic agent is a drug, and the drug is cisplatin, doxorubicin, Taxol, daunorubicin, mitomycin, actinomycin D, bleomycin, VP16, tumor necrosis factor, vincristine, vinblastine, carmustine, melphalan, cyclophosphamide, chlorambucil, bisulfan, lomustine, penicillin, erythromycin, amoxicillin, cefazolin, imipenem, aztreonam, sulbactam, linezolid, gentamicin, sulfamethoxazole, vancomycin, ciprofloxacin, fusidic acid, trimethoprim, metronidazole, clindamycin, mupirocin, amphotericin B, rifampin, fluconazole, or a combination thereof.

41. The method of claim 39, wherein the therapeutic agent is a hormone, and the hormone is luteinizing hormone releasing hormone, growth hormone, growth hormone releasing hormone, estrogen, progesterone, testosterone, androgen, corticotropin, prolactin, gonadotropin, somatotropin, somatostatin, somatotropin releasing hormone, gonadotropin releasing hormone, corticotropin releasing hormone, prolactin releasing hormone, pro-opiomelanocortin, melanotropin, calcitonin, gastrin, secretin, aldosterone, epinephrine, norepinephrine, follicle stimulating hormone, insulin, acetylcholine, aldosterone, angiotensin II, arginine vasopressin, bombesin, bradykinin, caerulein, calcitonin, cholecystokinin, chymodinin, corticosterone, cortisol, cortisone, dihydrotestosterone, dopamine, β -endorphin, epidermal growth factor, erythropoietin, estradiol, fibroblast growth factor, gamma aminobutyric acid, gastric inhibitory peptide, gastrin, glucagon, histamine, human chorionic gonadotropin, human placental lactogen, inhibin, insulinlike growth factor I, insulinlike growth factor II, leucine enkephalin, leukotrienes, lysine vasopressin, lysylbradykinin, melanin concentrating hormone, α -melanocyte stimulating hormone, mesotocin, methionin enkephalin, motilin, MSH release inhibiting factor, Mullerian regression factor, nerve growth factor, neurotensin, oxytocin, pancreatic polypeptide, parathormone, platelet-derived growth factor, prolactin inhibiting factor, prostacyclin I₂, prostaglandin E₂, prostaglandin F_{2a}, relaxin, serotonin, serum thymic factor, substance P, thromboxane A₂, thymopoietin, thymosina, thyrotropin (thyroid stimulating hormone; TSH), thyrotropin releasing hormone, thyroxine,

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46. The method of claim 24, wherein the therapeutic agent further comprises a detectable identifier, wherein the detectable identifier is an X-ray contrasting agent, a CT contrasting agent, an MRI contrasting agent, a fluorophore, or a luminophore.

47. A method of occluding an artery associated with a tumor in an individual comprising the step of administering to said tumor a polymer composition that comprises a biocompatible polymer, a cross-linking composition that comprises a cross-linker, wherein the polymer composition and the cross-linking composition are administered to allow formation of the cross-linked polymer *in situ* at the tumor.

48. The method of claim 47, wherein the polymer composition further comprises a therapeutic agent.

49. The method of claim 47, wherein the polymer composition and the cross-linking composition are separately administered to the tumor.

50. The method of claim 49, wherein the polymer composition and the cross-linking composition are administered to the tumor from separate containers, wherein a first container contains the polymer composition and a second container comprises the cross-linking composition.

51. The method of claim 50, wherein the first and second containers are syringes.

52. The method of claim 47, wherein the polymer composition and the cross-linking composition are administered to the tumor by means of a single container having at least two compartments, wherein one compartment comprises the polymer composition and another compartment comprises the cross-linking composition.

53. The method of claim 47, wherein the polymer composition and the cross-linking composition are administered to said region by means of a single container having a hollow cylindrical compartment, wherein the polymer composition and cross-linking composition are administered separately through said compartment.

54. The method of claim 53, wherein the separate administrations of said polymer composition and said cross-linking composition are by syringe.

55. The method of claim 47, wherein the polymer composition and cross-linking compositions are administered separately from a syringe having at least two compartments.

56. The method of claim 47, wherein the polymer is a polysaccharide, a polyamino acid polymer, or a combination thereof.

57. The method of claim 56, wherein the polymer is a polysaccharide, and the polysaccharide polymer is an alginate, hydroxycellulose, chondroitin, chitosan, hyaluronate, dextran or starch.

Sub-
a-
unit

58. The method of claim 56, wherein the polymer is a polyamino acid, and the polyamino acid is a polyglutamate or a polyaspartate.

59. The method of claim 47, wherein said cross-linking agent is a salt of a divalent cation.

60. The method of claim 59, wherein said divalent cation is Ca^{2+} , Mg^{2+} , Mn^{2+} , Cu^{2+} , Cr^{2+} , Sr^{2+} , Zn^{2+} , Ra^{2+} , or Be^{2+} .

61. The method of claim 59, wherein said salt of a divalent cation is calcium chloride, calcium sulfate, calcium phosphate, calcium carbonate, calcium chlorate, calcium fluoride, calcium bromide, magnesium chloride, magnesium sulfate, magnesium phosphate, magnesium carbonate, magnesium chlorate, magnesium fluoride, magnesium bromide, manganese chloride, manganese sulfate, manganese phosphate, manganese carbonate, manganese chlorate, manganese fluoride, manganese bromide, copper chloride, copper sulfate, copper phosphate, copper carbonate, copper chlorate, copper fluoride, copper bromide, chromium chloride, chromium sulfate, chromium phosphate, chromium carbonate, chromium chlorate, chromium fluoride, chromium bromide, strontium chloride, strontium sulfate, strontium phosphate, strontium carbonate, strontium chlorate, strontium fluoride, strontium bromide, zinc chloride, zinc sulfate, zinc phosphate, zinc carbonate, zinc chlorate, zinc fluoride, zinc bromide, radium chloride, radium sulfate, radium phosphate, radium carbonate, radium chlorate, radium fluoride, radium bromide, beryllium chloride, beryllium sulfate, beryllium phosphate, beryllium carbonate, beryllium chlorate, beryllium fluoride, or beryllium bromide.

62. The method of claim 47, wherein said therapeutic agent is a drug, a hormone, a gene therapy composition, a radionuclide, a nutraceutical, or a combination thereof.

63. The method of claim 62, wherein the therapeutic agent is a drug, and the drug is cisplatin, doxorubicin, Taxol, daunorubicin, mitomycin, actinomycin D, bleomycin, VP16, tumor necrosis factor, vincristine, vinblastine, carmustine, melphalan, cyclophosphamide, chlorambucil, bisulfan, lomustine, penicillin, erythromycin, amoxicillin, erythromycin, cefazolin, imipenem, aztreonam, sulbactam, linezolid, gentamicin, sulfamethoxazole, vancomycin, ciprofloxacin, fusidic acid, trimethoprim, metronidazole, clindamycin, mupirocin, amphotericin B, rifampin, fluconazole, or a combination thereof.

64. The method of claim 62, wherein the therapeutic agent is a hormone, and the hormone is luteinizing hormone releasing hormone, growth hormone, growth hormone releasing hormone, estrogen, progesterone, testosterone, androgen, corticotropin, prolactin, gonadotropin, somatotropin, somatostatin, somatotropin releasing hormone, gonadotropin

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releasing hormone, corticotropin releasing hormone, prolactin releasing hormone, pro-opiomelanocortin, melanotropin, calcitonin, gastrin, secretin, aldosterone, epinephrine, norepinephrine, follicle stimulating hormone, insulin, acetylcholine, aldosterone, angiotensin II, arginine vasopressin, bombesin, bradykinin, caerulein, calcitonin, cholecystokinin, chymodenin, corticosterone, cortisol, cortisone, dihydrotestosterone, dopamine, β -endorphin, epidermal growth factor, erythropoietin, estradiol, fibroblast growth factor, gamma aminobutyric acid, gastric inhibitory peptide, gastrin, glucagon, histamine, human chorionic gonadotropin, human placental lactogen, inhibin, insulinlike growth factor I, insulinlike growth factor II, leucine enkephalin, leukotrienes, lysine vasopressin, lysylbradykinin, melanin concentrating hormone, α -melanocyte stimulating hormone, mesotocin, methionin enkephalin, motilin, MSH release inhibiting factor, Mullerian regression factor, nerve growth factor, neurotensin, oxytocin, pancreatic polypeptide, parathormone, platelet-derived growth factor, prolactin inhibiting factor, prostacyclin I₂, prostaglandin E₂, prostaglandin F_{2a}, relaxin, serotonin, serum thymic factor, substance P, thromboxane A₂, thymopoietin, thymosina, thyrotropin (thyroid stimulating hormone; TSH), thyrotropin releasing hormone, thyroxine, triiodothyronine, urogastrone, vasoactive intestinal peptide, vasotocin, vitamin D₃, or a combination thereof.

65. The method of claim 62, wherein the therapeutic agent is a gene therapy composition, and the gene therapy composition is a vector containing p53, thymidine kinase, cytosine deaminase, oxidoreductase, thymidine kinase thymidilate kinase, deoxycytidine kinase, *ras*; *myc*, *raf*, *erb*, *src*, *fms*, *jun*, *trk*, *ret*, *gsp*, *hst*, *bcl*, *abl*, Rb, CFTR, p16, p21, p27, p57, p73, C-CAM, APC, CTS-1, *zac1*, scFV *ras*, DCC, NF-1, NF-2, WT-1, MEN-I, MEN-II, BRCA1, VHL, MMAC1, FCC, MCC, BRCA2, IL-1, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8, IL-9, IL-10, IL-11 IL-12, GM-CSF, G-CSF, or a combination thereof.

66. The method of claim 65, wherein the vector is a plasmid, an adenoviral vector, an adeno-associated viral vector, a retroviral vector, a liposome, and a combination thereof.

67. The method of claim 62, wherein the therapeutic agent is a radionuclide, and the radionuclide is ¹⁸⁸Re, ²¹³Bi, ¹⁶⁶Ho, ²¹¹At, or a combination thereof.

68. The method of claim 62, wherein the therapeutic agent is a nutraceutical, and the nutraceutical is arabinogalactan, acerola cherry, agnus castus (vitex), amla, andrographis, artichoke (globe), ashwagandha, astragalus, bacopa, beta 1,3 glucans, beta sitosterol, bilberry, borage oil, boswellia, broccoli cruciferous, bromelain, butcher's broom, calcium hydroxyl apatite, cascara sagrada, cat's claw, cetyl myristoleate, chamomile,

chitosan, chlorella, chondroitin sulfate, chromium yeast, citrus aurantium, citrus seed extract, co-enzyme Q10, colostrum, cordyceps, cranberry, creatine monohydrate, devil's claw, DHEA, DMG, dong quai, echinacea, elderberry, ephedra, evening primrose oil, feverfew, fish marine lipids, fish oil concentrate powder, fish protein powder, flaxseed oil, garcinia HCA, garlic T.A.P., germanium Ge-132, ginger, ginkgo, ginseng-American, ginseng-Siberian, ginseng-Asian, glucosamine, goldenseal, gotu kola, grapeseed extract, green tea extract, guarana, gymnema, hawthorne, hops, horse chestnut, horsetail, kava kava, kola nut, lecithin, licorice, lipoic acid, lycopene, medium chain tri-glycerides, melatonin, milk thistle, MSM, muira puama, nag, nettles, noni, ocimum sanctum, octacosanol, olivir, passion flower, pau d'arcophosphatidylserine, picrorhiza, potassium glycerophosphate, pygeum, quercetin, reishi, saw palmetto, schisandra, sea cucumber, selenium yeast bound, shark cartilage, shark liver oil, shiitake, shilajit, sodium copper chlorophyllin, spirulina, squalene, St. John's Wort, stevia, suma, tribulus (Bulgarian) triphala, tumeric, uva ursi, valerian, wild yam extract, willow bark, yohimbe bark extract, or a combination thereof.

69. The method of claim 48, wherein the therapeutic agent further comprises a detectable identifier, wherein the detectable identifier is an X-ray contrasting agent, a CT contrasting agent, an MRI contrasting agent, a fluorophore, a luminophore, or a combination thereof.

70. The method of claim 47, wherein said administration step occurs through a catheter.

71. A method of providing a slow-release hydrogel composition *in situ* to a tumor in an individual comprising administering to said tumor a polymer composition that comprises a biocompatible polymer, a cross-linking composition that comprises a cross-linker, and the therapeutic agent, wherein the polymer composition and the cross-linking composition are administered to allow formation of the cross-linked polymer *in situ* at the tumor, which cross-linked polymer comprises the therapeutic agent.

72. The method of claim 71, wherein the polymer composition comprises the therapeutic agent.

73. The method of claim 71, wherein the polymer composition and the cross-linking composition are separately administered to the tumor.

74. The method of claim 73, wherein the polymer composition and the cross-linking composition are administered to the tumor from separate containers, wherein a first container contains the polymer composition and a second container comprises the cross-linking composition.

84. The method of claim 71, wherein said therapeutic agent is a drug, a hormone, a gene therapy composition, a radionuclide, a nutraceutical, or a combination thereof.

85. The method of claim 84, wherein the therapeutic agent is a drug, and the drug is cisplatin, doxorubicin, Taxol, daunorubicin, mitomycin, actinomycin D, bleomycin, VP16, tumor necrosis factor, vincristine, vinblastine, carmustine, melphalan, cyclophosphamide, chlorambucil, bisulfan, lomustine, penicillin, erythromycin, amoxicillin, erythromycin, cefazolin, imipenem, aztreonam, sulbactam, linezolid, gentamicin, sulfamethoxazole, vancomycin, ciprofloxacin, fusidic acid, trimethoprim, metronidazole, clindamycin, mupirocin, amphotericin B, rifampin, fluconazole, or a combination thereof.

86. The method of claim 84, wherein the therapeutic agent is a hormone, and the hormone is luteinizing hormone releasing hormone, growth hormone, growth hormone releasing hormone, estrogen, progesterone, testosterone, androgen, corticotropin, prolactin, gonadotropin, somatotropin, somatostatin, somatotropin releasing hormone, gonadotropin releasing hormone, corticotropin releasing hormone, prolactin releasing hormone, pro-opiomelanocortin, melanotropin, calcitonin, gastrin, secretin, aldosterone, epinephrine, norepinephrine, follicle stimulating hormone, insulin, acetylcholine, aldosterone, angiotensin II, arginine vasopressin, bombesin, bradykinin, caerulein, calcitonin, cholecystokinin, chymodenin, corticosterone, cortisol, cortisone, dihydrotestosterone, dopamine, β -endorphin, epidermal growth factor, erythropoietin, estradiol, fibroblast growth factor, gamma aminobutyric acid, gastric inhibitory peptide, gastrin, glucagon, histamine, human chorionic gonadotropin, human placental lactogen, inhibin, insulinlike growth factor I, insulinlike growth factor II, leucine enkephalin, leukotrienes, lysine vasopressin, lysylbradykinin, melanin concentrating hormone, α -melanocyte stimulating hormone, mesotocin, methionin enkephalin, motilin, MSH release inhibiting factor, Mullerian regression factor, nerve growth factor, neurotensin, oxytocin, pancreatic polypeptide, parathormone, platelet-derived growth factor, prolactin inhibiting factor, prostacyclin I₂, prostaglandin E₂, prostaglandin F_{2a}, relaxin, serotonin, serum thymic factor, substance P, thromboxane A₂, thymopoietin, thymosina, thyrotropin (thyroid stimulating hormone; TSH), thyrotropin releasing hormone, thyroxine, triiodothyronine, urogastrone, vasoactive intestinal peptide, vasotocin, vitamin D₃, or a combination thereof.

87. The method of claim 84, wherein the therapeutic agent is a gene therapy composition, and the gene therapy composition is a vector containing p53, thymidine kinase, cytosine deaminase, oxidoreductase, thymidine kinase thymidilate kinase, deoxycytidine

kinase, *ras* ; *myc*, *raf*, *erb*, *src*, *fms*, *jun*, *trk*, *ret*, *gsp*, *hst*, *bcl abl*, Rb, CFTR, p16, p21, p27, p57, p73, C-CAM, APC, CTS-1, *zac1*, *scFV ras*, DCC, NF-1, NF-2, WT-1, MEN-I, MEN-II, BRCA1, VHL, MMAC1, FCC, MCC, BRCA2, IL-1, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8, IL-9, IL-10, IL-11 IL-12, GM-CSF, G-CSF, or a combination thereof.

88. The method of claim 87, wherein the vector is a plasmid, an adenoviral vector, an adeno-associated viral vector, a retroviral vector, a liposome, or a combination thereof.

89. The method of claim 84, wherein the therapeutic agent is a radionuclide, and the radionuclide is ^{188}Re , ^{213}Bi , ^{166}Ho , ^{211}At , or a combination thereof.

90. The method of claim 84, wherein the therapeutic agent is a nutraceutical, and the nutraceutical is arabinogalactan, acerola cherry, agnus castus (vitex), amla, andrographis, artichoke (globe), ashwagandha, astragalus, bacopa, beta 1,3 glucans, beta sitosterol, bilberry, borage oil, boswellia, broccoli cruciferous, bromelain, butcher's broom, calcium hydroxyl apatite, cascara sagrada, cat's claw, cetyl myristoleate, chamomile, chitosan, chlorella, chondroitin sulfate, chromium yeast, citrus aurantium, citrus seed extract, co-enzyme Q10, colostrum, cordyceps, cranberry, creatine monohydrate, devil's claw, DHEA, DMG, dong quai, echinacea, elderberry, ephedra, evening primrose oil, feverfew, fish marine lipids, fish oil concentrate powder, fish protein powder, flaxseed oil, garcinia HCA, garlic T.A.P., germanium Ge-132, ginger, ginkgo, ginseng-American, ginseng-Siberian, ginseng-Asian, glucosamine, goldenseal, gotu kola, grapeseed extract, green tea extract, guarana, gymnema, hawthorne, hops, horse chestnut, horsetail, kava kava, kola nut, lecithin, licorice, lipoic acid, lycopene, medium chain tri-glycerides, melatonin, milk thistle, MSM, muira puama, nag, nettles, noni, ocimum sanctum, octacosanol, olivir, passion flower, pau d'arcophosphatidylserine, picrorhiza, potassium glycerophosphate, pygeum, quercetin, reishi, saw palmetto, schisandra, sea cucumber, selenium yeast bound, shark cartilage, shark liver oil, shiitake, shilajit, sodium copper chlorophyllin, spirulina, squalene, St. John's Wort, stevia, suma, tribulus (Bulgarian) triphala, tumeric, uva ursi, valerian, wild yam extract, willow bark, yohimbe bark extract, or a combination thereof.

91. The method of claim 71, wherein the therapeutic agent further comprises a detectable identifier, wherein the detectable identifier is an X-ray contrasting agent, a CT contrasting agent, an MRI contrasting agent, a fluorophore, a luminophore, or a combination thereof.

92. A kit for treating a tumor *in situ* in an individual comprising, in a suitable containing means:

a first container having a polymer composition; and

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a second container having a cross-linking composition.

93. The kit of claim 92, wherein the polymer composition further comprises a therapeutic agent.

94. The kit of claim 92, wherein the polymer is a polysaccharide, a polyamino acid polymer, or a combination thereof.

95. The kit of claim 92, wherein the polymer is a polysaccharide, and the polysaccharide polymer is alginate, hydroxycellulose, chondroitin, chitosan, or hyaluronate.

96. The kit of claim 92, wherein the polymer is a polyamino acid polymer, and the polyamino acid polymer is polyglutamate or polyaspartate.

97. The kit of claim 92, wherein said cross-linking agent is a salt of a divalent cation.

98. The kit of claim 97, wherein said divalent cation is Ca^{2+} , Mg^{2+} , Mn^{2+} , Cu^{2+} , Cr^{2+} , Sr^{2+} , Zn^{2+} , Ra^{2+} , or Be^{2+} .

99. The kit of claim 97, wherein the salt of a divalent cation is calcium chloride, calcium sulfate, calcium phosphate, calcium carbonate, calcium chlorate, calcium fluoride, calcium bromide, magnesium chloride, magnesium sulfate, magnesium phosphate, magnesium carbonate, magnesium chlorate, magnesium fluoride, magnesium bromide, manganese chloride, manganese sulfate, manganese phosphate, manganese carbonate, manganese chlorate, manganese fluoride, manganese bromide, copper chloride, copper sulfate, copper phosphate, copper carbonate, copper chlorate, copper fluoride, copper bromide, chromium chloride, chromium sulfate, chromium phosphate, chromium carbonate, chromium chlorate, chromium fluoride, chromium bromide, strontium chloride, strontium sulfate, strontium phosphate, strontium carbonate, strontium chlorate, strontium fluoride, strontium bromide, zinc chloride, zinc sulfate, zinc phosphate, zinc carbonate, zinc chlorate, zinc fluoride, zinc bromide, radium chloride, radium sulfate, radium phosphate, radium carbonate, radium chlorate, radium fluoride, radium bromide, beryllium chloride, beryllium sulfate, beryllium phosphate, beryllium carbonate, beryllium chlorate, beryllium fluoride, or beryllium bromide.

100. The kit of claim 93, wherein the therapeutic agent is an anticancer drug, a hormone, a gene therapy composition, a radionuclide, a nutraceutical, or a combination thereof.

101. The kit of claim 100, wherein the therapeutic agent is an anticancer drug, and the anticancer drug is cisplatin, doxorubicin, Taxol, daunorubicin, mitomycin, actinomycin

D, bleomycin, VP16, tumor necrosis factor, vincristine, vinblastine, carmustine, melphalan, cyclophosphamide, chlorambucil, bisulfan, lomustine, or a combination thereof.

102. The kit of claim 100, wherein the therapeutic agent is a radionuclide, and the radionuclide is ^{188}Re , ^{166}Ho , ^{213}Bi , ^{211}At , or a combination thereof.

103. The kit of claim 100, wherein the therapeutic agent is a gene therapy composition, and the gene therapy composition is a vector containing p53, thymidine kinase, cytosine deaminase, oxidoreductase, thymidine kinase thymidilate kinase, deoxycytidine kinase, *ras*; *myc*, *raf*, *erb*, *src*, *fms*, *jun*, *trk*, *ret*, *gsp*, *hst*, *bcl abl*, Rb, CFTR, p16, p21, p27, p57, p73, C-CAM, APC, CTS-1, *zac1*, scFV *ras*, DCC, NF-1, NF-2, WT-1, MEN-I, MEN-II, BRCA1, VHL, MMAC1, FCC, MCC, BRCA2, IL-1, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8, IL-9, IL-10, IL-11 IL-12, GM-CSF, G-CSF, and a combination thereof.

104. The method of claim 103, wherein the vector is a plasmid, an adenoviral vector, an adeno-associated viral vector, a retroviral vector, a liposome, or a combination thereof.

105. The kit of claim 100, wherein the therapeutic agent is a hormone, and the hormone is luteinizing hormone releasing hormone, growth hormone, growth hormone releasing hormone, estrogen, progesterone, testosterone, androgen, corticotropin, prolactin, gonadotropin, somatotropin, somatostatin, somatotropin releasing hormone, gonadotropin releasing hormone, corticotropin releasing hormone, prolactin releasing hormone, pro-opiomelanocortin, melanotropin, calcitonin, gastrin, secretin, aldosterone, epinephrine, norepinephrine, follicle stimulating hormone, insulin, acetylcholine, aldosterone, angiotensin II, arginine vasopressin, bombesin, bradykinin, caerulein, calcitonin, cholecystokinin, chymodinin, corticosterone, cortisol, cortisone, dihydrotestosterone, dopamine, β -endorphin, epidermal growth factor, erythropoietin, estradiol, fibroblast growth factor, gamma aminobutyric acid, gastric inhibitory peptide, gastrin, glucagon, histamine, human chorionic gonadotropin, human placental lactogen, inhibin, insulinlike growth factor I, insulinlike growth factor II, leucine enkephalin, leukotrienes, lysine vasopressin, lysylbradykinin, melanin concentrating hormone, α -melanocyte stimulating hormone, mesotocin, methionin enkephalin, motilin, MSH release inhibiting factor, Mullerian regression factor, nerve growth factor, neurotensin, oxytocin, pancreatic polypeptide, parathormone, platelet-derived growth factor, prolactin inhibiting factor, prostacyclin I_2 , prostaglandin E_2 , prostaglandin F_{2a} , relaxin, serotonin, serum thymic factor, substance P, thromboxane A_2 , thymopoietin, thymosina, thyrotropin (thyroid stimulating hormone; TSH), thyrotropin releasing hormone, thyroxine,

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triiodothyronine, urogastrone, vasoactive intestinal peptide, vasotocin, vitamin D₃, or a combination thereof.

106. The method of claim 100, wherein the therapeutic agent is a radionuclide, and the radionuclide is ¹⁸⁸Re, ²¹³Bi, ¹⁶⁶Hf, ²¹¹At, or a combination thereof.

107. The method of claim 100, wherein the therapeutic agent is a nutraceutical, and the nutraceutical is arabinogalactan, acerola cherry, agnus castus (vitex), amla, andrographis, artichoke (globe), ashwagandha, astragalus, bacopa, beta 1,3 glucans, beta sitosterol, bilberry, borage oil, boswellia, broccoli cruciferous, bromelain, butcher's broom, calcium hydroxyl apatite, cascara sagrada, cat's claw, cetyl myristoleate, chamomile, chitosan, chlorella, chondroitin sulfate, chromium yeast, citrus aurantium, citrus seed extract, co-enzyme Q10, colostrum, cordyceps, cranberry, creatine monohydrate, devil's claw, DHEA, DMG, dong quai, echinacea, elderberry, ephedra, evening primrose oil, feverfew, fish marine lipids, fish oil concentrate powder, fish protein powder, flaxseed oil, garcinia HCA, garlic T.A.P., germanium Ge-132, ginger, ginkgo, ginseng-American, ginseng-Siberian, ginseng-Asian, glucosamine, goldenseal, gotu kola, grapeseed extract, green tea extract, guarana, gymnema, hawthorne, hops, horse chestnut, horsetail, kava kava, kola nut, lecithin, licorice, lipoic acid, lycopene, medium chain tri-glycerides, melatonin, milk thistle, MSM, muira puama, nag, nettles, noni, ocimum sanctum, octacosanol, olivir, passion flower, pau d'arcophosphatidylserine, picrorhiza, potassium glycerophosphate, pygeum, quercetin, reishi, saw palmetto, schisandra, sea cucumber, selenium yeast bound, shark cartilage, shark liver oil, shiitake, shilajit, sodium copper chlorophyllin, spirulina, squalene, St. John's Wort, stevia, suma, tribulus (Bulgarian) triphala, tumeric, uva ursi, valerian, wild yam extract, willow bark, yohimbe bark extract, or a combination thereof.

108. The kit of claim 93, wherein the therapeutic agent further comprises a detectable identifier, and the detectable identifier is an X-ray contrasting agent, a CT contrasting agent, an MRI contrasting agent, a fluorophore, a luminophore, or a combination thereof.

109. A kit for occluding an artery associated with a tumor in an individual comprising, in a suitable containing means:

- a first container having a polymer composition; and
- a second container having a cross-linking composition.

110. The kit of claim 109, wherein the polymer composition further comprises a therapeutic agent.

111. The kit of claim 109, wherein the polymer is a polysaccharide, a polyamino acid polymer, or a combination thereof.

112. The kit of claim 111, wherein the polymer is a polysaccharide, and the polysaccharide polymer is alginate, hydroxycellulose, chondroitin, chitosan, or hyaluronate.

113. The kit of claim 111, wherein the polymer is a polyamino acid polymer, and the polyamino acid polymer is polyglutamate or polyaspartate.

114. The kit of claim 109, wherein said cross-linking agent is a salt of a divalent cation.

115. The kit of claim 114, wherein said divalent cation is Ca^{2+} , Mg^{2+} , Mn^{2+} , Cu^{2+} , Cr^{2+} , Sr^{2+} , Zn^{2+} , Ra^{2+} , or Be^{2+} .

116. The kit of claim 114, wherein the salt of a divalent cation is calcium chloride, calcium sulfate, calcium phosphate, calcium carbonate, calcium chlorate, calcium fluoride, calcium bromide, magnesium chloride, magnesium sulfate, magnesium phosphate, magnesium carbonate, magnesium chlorate, magnesium fluoride, magnesium bromide, manganese chloride, manganese sulfate, manganese phosphate, manganese carbonate, manganese chlorate, manganese fluoride, manganese bromide, copper chloride, copper sulfate, copper phosphate, copper carbonate, copper chlorate, copper fluoride, copper bromide, chromium chloride, chromium sulfate, chromium phosphate, chromium carbonate, chromium chlorate, chromium fluoride, chromium bromide, strontium chloride, strontium sulfate, strontium phosphate, strontium carbonate, strontium chlorate, strontium fluoride, strontium bromide, zinc chloride, zinc sulfate, zinc phosphate, zinc carbonate, zinc chlorate, zinc fluoride, zinc bromide, radium chloride, radium sulfate, radium phosphate, radium carbonate, radium chlorate, radium fluoride, radium bromide, beryllium chloride, beryllium sulfate, beryllium phosphate, beryllium carbonate, beryllium chlorate, beryllium fluoride, or beryllium bromide.

117. The kit of claim 110, wherein the therapeutic agent is an anticancer drug, a hormone, a gene therapy composition, a radionuclide, a nutraceutical, or a combination thereof.

118. The kit of claim 117, wherein the therapeutic agent is an anticancer drug, and the anticancer drug is cisplatin, doxorubicin, Taxol, daunorubicin, mitomycin, actinomycin D, bleomycin, VP16, tumor necrosis factor, vincristine, vinblastine, carmustine, melphalan, cyclophosphamide, chlorambucil, bisulfan, lomustine, or a combination thereof.

119. The kit of claim 117, wherein the therapeutic agent is a radionuclide, and the radionuclide is ^{188}Re , ^{166}Ho , ^{213}Bi , ^{211}At , or a combination thereof.

